REMARKS

The present Amendment amends claims 5, 25 and 26, leaves claims 1-4, 7-20, 24 and 27 unchanged and cancels claims 6 and 21-23. Therefore, the present application has pending claims 1-5, 7-20 and 24-27.

Claims 23 and 25-27 stand rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as the invention. As indicated above, claim 23 was canceled. Therefore, this rejection with respect to claim 23 is rendered moot. Various amendments were made throughout the remaining claims 25-27 to bring them into conformity with the requirements of 35 USC §112, second paragraph. Therefore, Applicants submit that this rejection is overcome and should be withdrawn.

Specifically, amendments were made throughout claims 25-27 to overcome the objections noted by the Examiner in paragraph 3 of the Office Action.

The Examiner's cooperation is respectfully requested to contact Applicants' Attorney by telephone should any further indefinite matters be discovered so that appropriate amendments may be made.

Claims 1-8 stand rejected under 35 USC §103(a) as being unpatentable over Fernstrom (U.S. Patent No. 5,550,827) in view of Jurkevich (U.S. Patent No. 5,420,857); claims 9-16 and 21-23 stand rejected under 35 USC §103(a) as being unpatentable over Fernstrom in view of Jurkevich and further in view of Morita (U.S. Patent No. 6,389,041); claims 17-20 stand rejected under 35 USC §103(a) as being unpatentable over Fernstrom in view of Morita; and claims 24-27 stand rejected under 35 USC §103(a) as being

unpatentable over Fernstrom in view of Jurkevich and further in view of Yoneda (U.S. Patent No. 6,609,251). As indicated above, claims 6 and 21-23 were canceled. Therefore, the above described rejections of claims 6 and 21-23 is rendered moot. These rejections with respect to the remaining claims 1-5, 7-20 and 24-27 are traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1-5, 7-20 and 24-27 are not taught or suggested by Fernstrom, Jurkevich, Morita or Yoneda whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

Each of the claims of the present application clearly describe features of the present invention not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, amendments were made to each of the claims to more clearly recite that the present invention is directed to a data frame distribution method, a data frame transmission/reception method and a data frame reception method. According to the present invention, the data frame distribution method is provided so that one of at least two information processing apparatuses interconnected by at least two communication lines distributes and transmits data frames across the at least two communication lines to effect transmission of the data frames from the one information processing apparatus to the other information processing apparatus.

Further according to the present invention, the method includes storing for each communication line of the at least two communication lines a count of the number of data frames transmitted to the communication line, generating

a data frame to be transmitted, comparing the stored counts of the number of data frames for the at least two communication lines with each other, selecting a communication line from the at least two communication lines having the smallest stored count and transmitting the generated data frame to the selected communication line.

Thus, the present invention provides a method which operates in a system such as that illustrated in Fig. 1 wherein at least two information processing apparatuses 1001 and 1101 are interconnected to each other by at least two communication lines 1200. According to the present invention, data frames are distributed and transmitted across the at least two communication lines according to a particularly method such as, for example, where the number of data frames being transmitted on each of the lines is used to determine how subsequent transmissions of data frames are to be performed.

The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of the present invention now more clearly recited in the claims are not taught or suggested by Fernstrom, Jurkevich, Morita or Yoneda whether taken individually or in combination with each other as suggested by the Examiner.

Fernstrom teaches a method and apparatus for transferring data packets between stations through communication lines. Fernstrom specifically teaches, for example, in Figs. 1 and 2 thereof a hierarchical type network architecture wherein messages are sent between terminals 1 through

principal and intermediate nodes 3 and 5 respectively. As taught by Fernstrom, the principal node 3 is the higher level node through which all messages must pass and the intermediate (concentrating/expanding) nodes 5 receive and transmit messages from and to the principal node and receives and transmits a particular message to a terminal 1 which may be connected to the node. Each terminal 1 is connected to a particular node by a two-way link 7 and each node 3, 5 is connected to another node by a two-way link 9.

Fernstrom specifically teaches as noted above that communications occur between a terminal 1 and a node 3, 5 and between nodes. Thus, a pair of terminal 1 and a node 3, 5 or a node 3 and another node 5 would appear to correspond to the at least two information processing apparatuses recited in the claims. However, the similarities between the teachings of Fernstrom and the features recited in the claims end at this point since numerous features recited in the claims are not taught or suggested by Fernstrom.

For example, in Fernstrom the connection between a terminal 1 and a node 3, 5 is the link 7. However, there is no teaching or suggestion that data frames are distributed across a plurality of links which connect the terminal 1 and the node 3, 5 as in the present invention. In Fernstrom, all data packets are transmitted between the terminal 1 and the node 3, 5 via the link 7. There is no teaching or suggestion that at least two links are provided to interconnect the terminal 1 and node 3, 5 and that the distribution of the data packets across the at least two links is performed according to monitored factors and parameters as in the present invention.

Further, there is no teaching or suggestion in Fernstrom that information concerning the data frames transmitted across at least two

communication lines is monitored and stored as in the present invention. In the present invention, a count is made and stored with respect to each communication line of the at least two communication lines. The count is indicative of the data frames that were transmitted across the corresponding communication line. Such features are clearly not taught or suggested by Fernstrom.

Still further, according to the present invention, when a data frame is to be transmitted a comparison is performed with all of the counts corresponding to the communication lines. In Fernstrom, there is no such counting that is performed and as such a comparison between the counts is also not performed.

Still further yet, according to the present invention, a particular communication line is selected upon which the data frame is to be transmitted based on whether the communication line is one having the smallest count relative to the other counts. Since as described above, Fernstrom does not teach or suggest the preparing and storing of such counts and the comparing of the respective counts it follows that there is no teaching or suggestion in Fernstrom of the selecting of a particular communication line based upon a determination of which of the counts is the smallest relative to the others as in the present invention.

In the Office Action the Examiner recognizes the deficiencies of Fernstrom by stating that:

> "Fernstrom teaches checking to make sure that the received data packet has the current structure and the correct order (col. 9, lines 19-29) but fails to explicitly teach counting the number of data frames transmitted at least the communication lines and inserting the counted value in the generated data frame".

The deficiencies of Fernstrom are well documented therein being that col. 9, lines 19-29 of Fernstrom refers to element 341 as illustrated in Fig. 3b. Element 341 as taught by Fernstrom only judges whether a received byte includes a specific flag (EF). However, this teaching of Fernstrom is not in anyway related to comparing the stored counts of the number of data frames for the at least two communication lines with each other as in the present invention as recited in the claims.

The Examiner recognizing the above described deficiencies of Fernstrom attempts to combine Fernstrom with Morita. The Examiner alleges that Morita teaches receiving a data frame transmitted, comparing the byte counts of the frames and counting the number of data frames (transmitted byte count number) received from either one of at least the two communication lines and processed. The Examiner addresses attention to col. 45, lines 54-67, col. 46, lines 1-20 and col. 50, lines 40-49 of Morita.

The above noted passages of Morita do not teach the features alleged by the Examiner. These passages of Morita are simply concerned with comparing counts of the number of already transmitted bytes received from a transmitted byte count counter 4306 with the total number of bytes in the packet received from the transmitted type count holding register 4307 of a single communication line so as to determine whether data is output from a data buffer 408 or not. This teaching of Morita is not concerned with the basic

function of the present invention, that of performing a comparison between the counts of data frames for two different communication lines. Morita is simply concerned with the counting of packets on a single transmission line such as, for example, optical fiber 4212. Further, there is absolutely no teaching or suggestion in Morita of the above described feature of the present invention as clearly recited in the claims shown to be deficient in Fernstrom regarding the comparing of respective counts of two transmission lines as in the present invention.

Thus, Fernstrom fails to teach or suggest a data frame distribution method wherein one of the at least two information processing apparatuses interconnected by at least two communication lines distributes and transmits data frames across the at least two communication lines to effect transmission of the data frame from the one information processing apparatus to the other information processing as recited in the claims.

Further, Fernstrom fails to teach or suggest storing, for each communication line of the at least two communication lines, a count of the number of data frames transmitted to the communication line as recited in the claims.

Still further, Fernstrom fails to teach or suggest comparing the stored counts of the number of data frames for the at least two communication lines with each other as recited in the claims. Morita does not provide this deficiency of Fernstrom as alleged by the Examiner.

Still further yet, Fernstrom fails to teach or suggest selecting a communication line from the at least two communication lines having the smallest stored count of the number of data frames as recited in the claims.

Therefore, as is quite clear from the above, the features of the present invention as now more clearly recited in the claims are not taught or suggested by Fernstrom whether taken individually or in combination with any of the other references of record.

The above noted deficiencies of Fernstrom are also evident in each of the other references of record namely Jurkevich, Morita and Yoneda. Therefore, combining the teachings of Fernstrom with one or more of Jurkevich, Morita and Yoneda still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Jurkevich merely discloses a packet switch which allows for the selection of a particular transmission line as the best available transmission line among a plurality of transmission lines. Jurkevich teaches that the best available transmission line is selected using predetermined call connection criteria. However, this teaching of Jurkevich is not concerned with the distribution of packets across a plurality of lines which interconnect at least two information processing apparatuses as in the present invention. Jurkevich is concerned with call processing where once a call has been established all packets flow on the single transmission line. The present invention is directed to apparatus in which transmission of data frames are to be conducted over a plurality of communication lines without regard to the order of the data frames. Such features are clearly not taught or suggested by Jurkevich.

Morita is directed to a synchronization system and method for use in a synchronous multi-system control apparatus which controls a system in a manner so that a plurality of systems can operation synchronously with each

other at a fixed control. There is absolutely no teaching or suggestion in Morita regarding the interconnection of at least two information processing apparatuses by at least two communication lines wherein communications between the at least two information processing apparatuses are to be conducted across the at least two communication lines.

Yoneda is directed to a digital broadcasting transmitting method and apparatus wherein a transport stream is created and transmitted in a digital broadcasting system in which plural packets including video data packets of digitized video and service information packets of information about broadcasting using the video have been multiplexed. Yoneda is relied upon for an alleged teaching of adding order information for transferring and receiving packets and transferring and receiving them based on the order information. However, there is no teaching or suggestion in Yoneda regarding the interconnection of at least two information processing apparatuses by at least two communication lines wherein communications between the at least two information processing apparatuses are to be conducted across the at least two communication lines that for each communication line a count is stored of the number of data frames transmitted to the communication line and that the stored counts of the number of data frames for the at least two communication lines are compared with each other so as to select a communication line from the at least two communication lines having the smallest stored count of the number of data frames as in the present invention.

Thus, as is quite clear from the above, Jurkevich, Morita and Yoneda suffer from the same deficiencies relative to the features of the present

invention as now more clearly recited in the claims as Fernstrom. Therefore, combining the teachings of Fernstrom with one or more of Jurkevich, Morita and Yoneda as suggested by the Examiner in the Office Action still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Accordingly, reconsideration and withdrawal of the above described rejections of the claims under 35 USC §103(a) as being unpatentable over Fernstrom taken in combination with one or more of Jurkevich, Morita and Yoneda is respectfully requested.

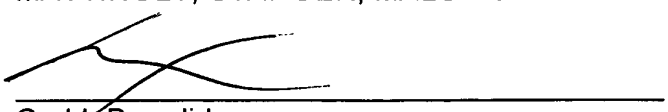
The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-27.

In view of the foregoing amendments and remarks, applicants submit that claims 1-5, 7-20 and 24-27 are in condition for allowance. Accordingly, early allowance of claims 1-5, 7-20 and 24-27 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER & MALUR, P.C., Deposit Account No. 50-1417 (500.40212X00).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.



Carl I. Brundidge
Registration No. 29,621

CIB/jdc
(703) 684-1120